

REMARKS

The Office examined claims 1-10 and rejected same. With this paper, claims 2 and 4-10 are amended, claims 1 and 3 are canceled, and new claims 11-16 are added.

Double Patenting

Claims 1-2 and 8-10 are provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-2, 4, 12-14 and 16 of copending application No 10/517,946 (Schorpp'946 hereinafter).

In particular, the Examiner compared claims 1 and 2 of the instant application with claims 1 and 13 of Schorpp'946 (pages 3-4 of the Detailed Action).

Applicant would like to inform the Office that the claims in the copending application Schorpp'946 have been amended in view of the rejections in a non-final Office Action. The amended claim 1 of Schorpp'946 is as follows:

1. A device comprising at least
 - an interface between a first deformable dielectric layer and a second deformable dielectric layer, said first layer consisting of a viscoelastic relief forming material,
 - a first electrode structure,
 - a second electrode structure opposing said first electrode structure such that said layers are located between said first electrode structure and said second electrode structure,
 - a signal supplier for applying a signal voltage between said first and second electrode structures to generate an electric field passing through said layers in order to create a surface relief in said first layer,
 - an enhancement electrode structure arranged in the proximity of said second electrode structure, and
 - an enhancement signal supplier arranged to apply a pulsed enhancement signal voltage between said enhancement electrode structure and said second electrode structure during flattening of said surface relief in order to enhance relaxation of said first layer.

Claim 13 of Schorpp'946 has been canceled and replaced by new claim 19:

19. A display device comprising a plurality of light modulating cells, each cell in turn comprising:
 - an interface between a first deformable dielectric layer and a second deformable dielectric layer, said first layer consisting of a viscoelastic relief forming material,
 - a first electrode structure,

a second electrode structure opposite said first electrode structure such that said layers are located between said first electrode structure and second electrode structure,

a signal supplier for applying a signal voltage between said first and second electrode structures to generate an electric field passing through said layers in order to create a surface relief on said first layer,

an enhancement electrode structure arranged in the proximity of said second electrode structure, and

an enhancement signal supplier arranged to apply a pulsed enhancement signal voltage between said enhancement electrode structure and said second electrode structure during flattening of said surface relief in order to enhance relaxation of said first layer.

With this paper, claim 1 is canceled and claim 2 is amended. Applicant respectfully submits that, even though claim 2 of the present invention and claims 1 and 19 of Schorpp'946 have the same number of elements, the element "enhancement signal supplier" has different features in claim 1 and 19 of Schorpp'946 as compared to claim 2 of the present invention.

In claims 1 and 19 of Schorpp'946:

an enhancement signal supplier arranged to apply a pulsed enhancement signal voltage between said enhancement electrode structure and said second electrode structure during flattening of said surface relief in order to enhance relaxation of said first layer.

In claim 2 of the present application (as currently amended):

an enhancement signal supplier for applying an enhancement signal voltage between the enhancement electrode structure and the signal electrode structure for enhancing the deformation of the viscoelastic material layer,

wherein the signal electrode and the enhancement electrode structure are capable of storing electrical charges, the enhancement signal supplier is arranged in a temporally controlled manner to transfer electric charge between the signal electrode structure and the enhancement electrode structure, and

wherein the enhancement signal voltage is generated using substantially only the electrical charge transferred from the signal electrode structure to the enhancement electrode structure.

First, the enhancement signal supplier in Schorpp'946 is arranged to enhance the **relaxation** of the viscoelastic material layer (during flattening of the surface relief), whereas the enhancement signal supplier in the present application is arranged to enhance the **deformation** of the viscoelastic material layer. These two enhancements recite opposing features. Therefore, the two enhancement signal suppliers are not the same at least in the voltage waveforms they each generate.

Second and further in detail, the enhancement signal supplier of the present application is arranged in a temporally controlled manner to transfer electric charge between the signal electrode structure and the enhancement electrode structure, and the enhancement signal supplier is capable of generating an enhancement signal voltage using substantially only the electrical charge transferred from the signal electrode structure to the enhancement electrode structure. The enhancement signal supplier of Schorpp'946 does not have the charge transfer mechanism as claimed.

Therefore, claim 2 of the present invention is distinguishable from claims 1 and 19 of Schorpp'946.

Based on the above, the instant invention, as defined by currently amended claim 2 and all dependent claims thereof, is distinct from the copending application Schorpp'946. Applicant respectfully requests the double patenting rejection of claims 1-2 and 8-10 over claims 1-2, 4, 12-14 and 16 of Schorpp'946 be reconsidered and withdrawn.

Claim Rejections under 35 USC §103

Claims 1-10 are rejected under 35 USC §103(a) as being unpatentable over Guscho (WO 01/48531, Guscho hereinafter) in view of Takamura et al (U.S. Patent No. 4,291,337, Takamura hereinafter).

Independent claim 2 recites an electrically controlled light modulator device comprising at least one cell. The cell comprises: (1) two deformable dielectric layers, (2) a support electrode structure, (3) a signal electrode structure, (4) an enhancement electrode structure, (5) a signal supplier, and (6) an enhancement signal supplier.

Guscho teaches a light modulator cell that has a support electrode (first electrode) and a signal electrode arranged with two dielectric layers (one being a deformable gel) in between. Different from the present invention, Guscho does not disclose an enhancement electrode structure, which is a separate electrode structure than the support electrode structure and the signal electrode structure and is separately controlled by an enhancement signal supplier.

In the Office Action, the Office relies on element 42 of Fig. 22 and description on page 49, lines 21-23 of Guscho for the disclosure of the enhancement electrode structure. Applicant respectfully disagrees. In fact, at the cited locations, Guscho teaches that the signal electrode in each cell of the light modulator may be made in the form of bands, concentric rings, a matrix of elements or elements of any other structure. Fig. 22 illustrates an arrangement of the signal electrode 42 in multiple sections. Each section of the multiple section electrodes 42 is connected with a switch device 41 and each of the switching device 41 is connected to the line bus at one inlet and the column bus at another inlet (page 49, lines 24-27). Individually, each section of the signal electrode 42 is functionally equivalent to the one-piece signal electrode 3 illustrated in e.g. Fig. 1. Further, because the signal voltage to each cell is not varied from one section of the signal electrode 42 to another, the entire electrode 42 is functionally equivalent to the one-piece signal electrode 3 in Fig. 1.

Furthermore, because there is no enhancement electrode structure disclosed in Guscho, there is also no enhancement signal supplier disclosed. Element 41, as alleged by the Examiner as the enhancement signal means, is actually a switching device that connects the signal electrode to the line and column buses. It is a gateway to the signal supplier, not to the enhancement signal supplier.

Guscho further discloses a stacked light modulator cell that comprises a first signal electrode 3, a first support electrode 6, a second signal electrode 47 and a second support electrode 43 (page 50, line 29 to page 51, line 5 and Fig. 23) for increasing sensitivity of the light modulator. However, the second signal takes the same data signal from the line bus as the first signal electrode. It is not an enhancement electrode as in the present invention.

The Office alleges that claim 2 was recited in its entirety in Guscho. However, as the Applicant has pointed out, Guscho fails to disclose some essential elements of claim 2, i.e. the enhancement electrode structure and the enhancement signal supplier. Therefore, claim 2 is not anticipated or suggested by Guscho.

Claims 4-10 depend from claim 2. For the same reasons given above regarding claim 2, it is respectfully submitted that claims 4-10 are also not anticipated or suggested by the cited reference Guscho. It follows that a combination of Guscho and Takamura does not include all the elements of claim 2 and dependent claims thereof.

Accordingly, applicant respectfully requests that the rejections of claims 2 and 4-10 under USC §103(a) be reconsidered and withdrawn.

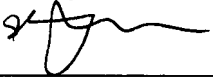
Conclusion

For all the foregoing reasons, it is believed that all of the claims of the application are now in condition for allowance, and their passage to issue is earnestly solicited. Applicant's agent urges the Examiner to call to discuss the present response if there are any questions.

Date: Nov. 7, 2007

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Respectfully submitted,



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